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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY

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DOOLITTLE'S TEACHINGS sound like good sense in French as well as English. "Bee-keeping for Farmers," GLEANINGS, 967, is translated in full in *Le Progres Apicole*.

THE *Bienenwirtschaftliches Centralblatt* says Rudolph Dathe has the largest apiary in Germany, with 451 colonies, the next six in order containing 380, 300, 285, 210, 170, and 150 each.

IN THIS LOCALITY prospects look bright for the coming harvest. (The bee-keeper that can't see any bright prospect ahead isn't very much of a bee-keeper.) White clover was in good condition when winter set in, and there has been a good blanket of snow for several weeks, with a prospect of continuance.

HERE'S A KINK worth thinking about that Editor Hutchinson lets out on W. L(ighting) Coggs: When uncapping for the extractor, *slice deep*. Takes ever so much less time than the usual way, the honey can be drained from the cappings, and it takes no more wax to build out the cells than the bees will secrete anyway.

ONCE got myself into trouble, not with the Dadants, but with one of their friends, by speaking jokingly of those miserable frog-eaters down at Hamilton. (As a matter of fact I am exceedingly partial to frog-legs.) I hope to reinstate myself in the good graces of their belligerent defender by quoting an expression from that bright new periodical, *L'Apiculture Pratique*: "The bee-keepers of the whole world owe to the Messrs. Dadant a tribute of profound gratitude." Which sentiment I heartily indorse.

EDITOR HUTCHINSON says Italians are much less susceptible to black brood than blacks or hybrids. The Australians say Italians are safer against foul brood. [Two inspectors who attended the State convention at Geneva, N. Y., stated that, for some reason, the Italians seemed much more able to resist black brood. They could assign no cause for it, but

the fact was nevertheless true. I believe, though, it was suggested that, as black bees, including hybrids, are more inclined to rob than the pure yellow Italians, the former in the stealing expeditions would carry to their colonies germs of infection when the Italians, content to work in the fields, would gather the pure non-infected nectar from the flowers. —Ed.]

THE CHICAGO BEE-KEEPERS' ASSOCIATION, as reported in *American Bee Journal*, urges the N. B. K. A. to provide local associations with printed matter to help boom the N. B. K. A. Now, why didn't some one think of that before? With all the bee-journals and the local societies booming it, why ought not the membership this year to reach 1000? A thousand members! Hip, hip—but perhaps we better wait till we reach the thousand. [A good idea; and I would suggest that the General Manager, if he deems it proper, prepare a circular or booklet, giving the objects of the Association, and what it has accomplished during the period of its existence. I think it would be proper to include the work of the old Union, as that is now a part of the new organization, the N. B. K. A. The organization has a great record and it should be known. —Ed.]

INSPECTOR McEVoy says in *Review* that it is perfectly safe to give to a healthy colony combs taken from a foul-broody colony if such combs *never had brood in them*, and if they have been *licked clean and dry* by the foul-broody bees. [I remember our friend McEvoy making that statement in convention; but assuming that he is correct, the advice would be a little dangerous to beginners and to bee-keepers of experience who are a little careless in their ways of working. It takes good strong eyes sometimes to detect the presence of a cocoon or cocoons in brood-combs. Methinks it would be safer for the average bee-keeper to render up *all* combs from foul-broody hives. We must not forget that a line of procedure that would be safe for an expert inspector like Mr. McEvoy might be unsafe for *some* bee-keepers. For example, I can handle with a fair degree of safety a razor or a loaded revolver, and I can give my ten-year-

old boy full directions on how to handle either; but do you think I would trust him to carry out my directions? Not I.—ED.]

IRA BARBER says in *Review* that the only thing necessary to keep cellared bees from becoming uneasy toward spring "is to keep all fresh air from reaching them, by banking thoroughly from the outside, and be sure that it is kept there air-tight." Looks reasonable, doesn't it? that a sniff of spring air should make them want to get out where there's more of it. But how do you account for another thing? When they get uneasy with the outside temperature at 45° or 50°, and the cellar is left wide open all night, they are very quiet in the morning, and don't offer to fly out, even if full daylight shines in. If a little fresh air leaking through the walls makes them uneasy, why doesn't a whole flood of it make them worse? [Ever since the article came out in the *Review* I have been cogitating on it not a little. I had already formulated some thoughts on this phase of the wintering question, and I would therefore refer you to an editorial in this issue.—ED.]

E. GIRAUD-PABOU, in *Revue Electique*, gives the following as his sole means of introducing queens: Roll the queen in a spoonful of honey. When thoroughly smeared, drop her between two combs of brood so close together that she can not fall to the bottom; smoke, and close the hive. The queen may be introduced the evening of the same day the queen is removed, and up to the ninth day after. No need to destroy queen-cells. [Some years ago there used to be more talk about dipping queens (to be introduced) in honey than now. If I remember correctly, some valuable queens were lost by such procedure. Perhaps it might be well to call on those who have had experience, and who could tell us why they abandoned the practice. I have introduced queens by that plan myself, and I do not remember that I ever lost a queen where the colony was surely queenless. But the meanest stock to introduce a queen to is one having cells pretty well advanced, and almost ready to hatch. A still meaner one is one having a young virgin. Kill that virgin, and they are still mean. Well, let us have reports from those who have tried the honey-dipping process of introducing.—ED.]

COMMENT 315, in the latest A B C, says my plan of placing 4 hives in a group is more economical of room than S. E. Miller's plan with 5 in a group. Then you ask in a footnote, Mr. Editor, "If the hives in the several groups on the S. E. M. plan were placed only 3 inches apart, and the space gained closed up between the several groups, is it not true S. E.'s plan would accommodate more hives in a given area than your plan?" I suppose you want an answer to that question, and it is, "No." Look at the figures I send you, and you will see that, when your conditions are fulfilled, S. E.'s plan still takes 5 per cent more room than mine. [I have examined Dr. Miller's figures, and must admit that he is right; but the difference is so very, very slight, that it practically amounts to "six of

one and half a dozen of another." I am not sure but I should prefer the C. C. in place of the S. E. plan, for the simple reason that the entrances would all be pointing in one direction, while in the S. E. way the entrances of one set of hives are at right angles with the entrances of another set in the same group. It is desirable to direct the flight of bees, as far as possible, in one direction, so that there may be an alleyway for the bees and one for the bee-keeper. Encountering the flight of busy workers is annoying, both to the bees and to their owner.—ED.]

HERE'S SOMETHING to give "aid and comfort" to Mrs. Barber and ye editor. Devauchelle says in *L'Apiculteur* that the only way to set bees to work at once in sections, and also the best way for the bee-keeper to employ with profit, is to put on first an extracting-super, and when this is nearly filled to put a section-super under it. [Yes, indeed; like other mortals I like to read what suits my way of thinking. Over and over again I have had stubborn colonies of Italians that would not go into the supers, boiling over with strength, clover out in profusion, and yet they would stay in the brood-nest and cram every available cell before going above. I have given such colonies supers of shallow extracting-combs when they rushed above; and after they got well going in these combs I took these supers off and gave them, instead, supers of sections with full sheets of foundation. The habit of going above being once established, caused those bees to occupy at once quarters that they had refused to occupy before. I am sure the principle is all right when working with Italians, and in localities where the honey-flow is not strong enough to force the bees above with a mighty rush.—ED.]

COGGSHALL puffs smoke into his extracting-supers, and flops a cloth up and down to make the smoke go in. I tried it with no great success. I suspect it doesn't work as well on supers of sections as on his supers of extracting-combs. [Yes, sir, I saw Mr. Coggshall and one of his men, by means of the flop-cloth smoker act, drive about two-thirds of the bees out of something like 30 or 40 different extracting-supers. From three to five floppings of the cloth would accomplish the result in a surprisingly small amount of time. The rest of the bees were disengaged by a peculiar trembling shaking motion, combs being shaken *in* the hive and not in front of the entrance. In some cases there would be half a dozen bees left on the combs; but these persistent chaps were quickly dislodged with the Coggshall bee-brush. You say it does not work as well on supers of sections as on supers of extracting-combs. I suppose you refer to the old-style sections; and if so, right you are. In the ordinary beeway sections there is a little space at each corner, the top not being cut away. It is in these spaces that the bees lodge and pile up. In supers of no beeways, or plain sections, the bees are dislodged much more easily; and easier still from plain extracting-combs.—ED.]

RAMBLE 182.

Alfalfa in California; Extracting Methods Discussed; a Practical Method of Hive-record Keeping.

BY RAMBLER.

"Now, Mr. Rambler, if you feel like it this morning we will hitch my old white horse Bonares to the top buggy, and you and I and the children will visit the apiaries, and you can see the lay of the land and various other matters."

"I am ready any time, Mr. McCubbin; but I can tell you before we start that I do not like the lay of the land. This San Joaquin Valley is a great prairie, and I do not like a dead-level country—it is too monotonous. I was raised in the hill country of New York where the roads wound around the hills. Those roads were just charming with their change of scenery. Even in Southern California our roads lead into the hills and to the grand mountains; but the mountains here are in the dim distance. There is nothing distinctive in such a level country; and where the roads just follow land sections, and form squares, a ranch house might as well be a peg on the map, and other ranch houses just so many more pegs. I am sure I shall be lonesome without the hills."

"Oh! well, Rambler, you will soon get used to this level condition of the country, and like it. You can wheel anywhere here, and have no hills to contend with. We will now go to our first apiary, which is out three and a half miles on my raisin and alfalfa ranch, which I rent, reserving the bees for more skillful hands—like yours, for instance."



COMBINATION HONEY-HOUSE AND RESIDENCE.

"Thank you, Mr. McCubbin; but I fear my hands will not be very skillful here, for I am satisfied that the conditions are entirely different here from those I have been familiar with, and I shall, with your advice, have to learn the trade anew. It seems that I am traded around into various portions of this great

State, and I shall be a dull scholar indeed if I do not learn a few new wrinkles in bee-keeping. Now, you are familiar with this country, and know every foot of land between Reedley and Traver; what are the conditions of alfalfa growth here? and is the country generally adapted to its cultivation?"

"No, Mr. Rambler, there are only certain districts that are adapted to alfalfa culture. Here is a district about two miles wide and ten in length, or 20 square miles, well adapted to the growth of alfalfa. East of us the land is heavy, like adobe; and, though alfalfa will grow upon it, it does not thrive as upon this more porous soil, and it is sown mostly to wheat. Then west of us is a portion not adapted to alfalfa; but when we get over to Selma, 13 miles west, there is quite an extensive acreage where alfalfa does well. So far as I know, it runs in spots all through the valley. The hindrances are sometimes adobe, sometimes alkali, and again too sandy and porous, and not water enough for irrigation."

"Mr. McCubbin, I should like to ask how many acres of alfalfa are in this twenty square miles."

"I know the country well, and think I can answer your question quite correctly. There is fully 5000 acres, or well toward eight square miles. The remainder is occupied with fruit-orchards, vineyards, grain-fields, etc."

"You may think I am figuring down quite fine, Mr. McCubbin; but do you know how many colonies of bees are owned in this area?"

"I think I can answer that quite closely. I am acquainted with all of the bee-men, and the number of colonies is not far from 1500."

"Then, Mr. McCubbin, there is about one colony to every three and one-third acres of alfalfa. Do you call that crowding in too many bees for the pasture?"

"Well, as the fellow said, that depends. If we were sure of an alfalfa yield every season, there might be more crowded upon the pasture; but some seasons the alfalfa fails to secrete nectar; and when that happens there are too many bees, and a small crop is the result. I think the pasture is overcrowded around my out-apiary three and a half miles from what you will call your home apiary. There are fully 900 colonies on 1000 acres, and in another year the number will run up to a thousand, or a colony to every acre, and that is getting them in too thick."

"You say, Mr. McCubbin, that you scarcely ever have a failure of a honey crop. What do you depend upon if the alfalfa fails? I believe you have no sage here."

"You are right, Mr. Rambler. We have no sage here. There is some over on the foothills of the Coast Range of mountains, on the

west side of the valley ; but that is fifty miles from us. Here in the valley we have a good fruit-bloom. After that there is a precarious yield from yellow sweet clover, which grows plentifully along the ditches ; then there is an alkali weed, also sweet clover just getting a footing ; also wild sunflower and a camphor-weed which come up by the hundred acres in our grain-fields, and give a good flow of honey until into October. Well, here we are. This is what I call my twenty-acre ranch, and it was my home until after my wife died. You will observe that the apiary is pleasantly located under the peach-trees, and here is the cabin you can occupy. One end is a honey-house and the other a living-room. Your work-shop can be under those fig-trees. You can hardly imagine what a grateful shade those fig-trees make when the mercury gets up to 115 or 120° in the shade."

"Whew, Mr. McCubbin ! but I am afraid I shall melt if the sun pours down caloric at that rate. Then see here ; it seems to me that this extracting-house is some distance from

work the bees ; do as you like ; if you prefer to lift your honey in concentrated form in cans, then that is the proper way. All I ask is to have the work well done. The conditions are not as to the *how*."

"I notice, Mr. McCubbin, that you have cards tacked upon the hives. How do you use them?"

"You observe, Mr. Rambler, that when I am working with the bees I note down upon the card the conditions as they arise during the season. At the close of the honey-yield I transfer the record on the cards to my permanent record-book. Now, I can turn to my record and tell the condition of any colony, and the amount of honey it has produced, and its value. For instance, here is hive 63, 1889. The first ruled columns are for the dates when the caps were put on and when full ; then space for comments, then more columns for weight and grades of extracted and comb honey, and the value. I was producing comb honey mostly when this record was kept, and had three grades : fancy, No. 1, No. 2, and



M'CUBBIN'S PEACH-ORCHARD APIARY.

the apiary ; and do you have to wheel all of the honey in here, lift it up these steps and into this close dark room ? Why, I believe it is a tenth of a mile out to the far side of the apiary."

"That's the way we do it, Rambler. You see we work on Aikin's plan—take the combs home to extract."

"Yes, yes ! I see, Mr. McCubbin ; but your plan is worse than Aikin's—he uses a horse, while you make a horse of yourself ; and, land o' Goshen ! what a heavy wheelbarrow this is ! Say, my friend, if you want a wheelbarrow, light and well made, send to The A. I. Root Co. for a Daisy. It is just the thing for an apiary. I speak from experience, for I have one in my up-to-date apiary down south. But, really, Mr. McCubbin, I believe if you have no objections—yes, and I believe even if you do have objections—I shall build one of our cheap Southern California extracting-houses right out under the shade of one of those peach-trees, and right among the bees."

"All right, Rambler. You are the one to

the record for extracted honey was whether it was taken from the cap or brood-chamber. If a colony was unusually cross through the entire season, the queen was marked for supersedure ; and you will see by this record that the season runs clear into October. You will also note that the record gives a better general yield in 1896 than in 1889."

"Well, Bro. McCubbin, you have your record worked down fine. My plan is to lump the whole crop, and then strike an average for each colony. There are always a few that will show a better record than the rest, and these I always reserve to breed from."

"Yes, Rambler ; every man has his way of doing things, and we will not quarrel over methods as long as you get the honey. When you come here to live in this combination honey-house and residence you can look every thing over at your leisure. And now we will go to the out-apiary, three and a half miles further along. Come, Bruce and Grace, hustle into the wagon with Rambler and we will be off."

The apiary shown in the photo is comfortably shaded with peach-trees, and contains 150 colonies, but is roomy enough for 200. An alfalfa-field is in the foreground. The something in the distance that looks like a haystack is the dense foliage of umbrella-trees around a farmhouse.

THE ART OF BOTTLING AND SELLING HONEY.

Does Not Pay to Bottle a Poor Grade; Package must be Useful when Empty; the Lard-bucket not a Good Seller; Importance of Tinfoiling; an Excellent Article.

BY J. C. WALLENMEYER.

Having had an experience of eight years in bottling a dozen different kinds of honey in a dozen different kinds of packages or containers, I thought I would give the benefit of my somewhat varied experience to the readers of GLEANINGS that they might possibly profit by avoiding the usual mistakes of beginners in using unsalable packages.

I have bottled honey from alfalfa, basswood, willow-herb, white clover, California sage, Florida mangrove, saw and cabbage palmetto, wild aster, and smartweed (or heartsease) mixed; dry-weather honey-vine, and fall flowers. For containers I have used pint and quart Masons, costing 50 and 60 cts. per dozen, 5 and 8 oz., and 1 and 2 lb. square flint-glass jars, costing \$5.70 and \$7.50 per gross (corks included); 13 and 16 oz. jelly-glasses; ½-gallon fruit-tablet jars costing 5 cts. each; lard-buckets; glass bowls, and Root's No. 25 round flint-glass one-pound jars—quite a variety to select from.

I found Root's No. 25 jar the best and quickest seller of all, because, after being emptied, it could be used as a self-sealer for jelly, preserves, jams, etc.; only flint-glass jars should be used, as they show the honey off to perfection. Amber honey will sell nearly as well in quart Masons on account of the universal use

of the package; but it is hard to sell 3 lbs. of honey to every-day consumers. Most people prefer a small cheap package. Our market demands a honey of light or light amber color, heavy body, mild flavor, and fine bouquet or aroma. It does not pay to bottle a poor grade of honey. The people generally get accustomed to the kind of honey produced in their own locality. I found this out to my sorrow when I tried to sell three barrels of mangrove and palmetto honey from Florida, although I thought it fine indeed. This matter of selection is very important. If you happen to run short of honey, and must buy, procure an article as near like your own as possible. I have found, just as friend Pouder says, that patrons grow suspicious when they get different honey. I find honey from white clover, dry-weather honey-vine, and fall flowers, to give the best satisfaction for bottling, in my locality. Briefly stated, there are three essentials for success in bottling honey:

1. Best quality of well-ripened honey.
2. Neat, attractive package, useful when empty.



FIG. 1.—J. C. WALLENMEYER AND HIS LIQUEFYING APPARATUS.

3. Aggressive selling methods.

You might have the very finest honey; but if it is not put up attractively it will not sell. You might have a poor article put up in a showy, gaudy, labeled package, but no one will buy a second time. Again, you may have a fine article of heavy body and fine flavor, put up in the right kind of package; but if you leave it at home, what good will it do? Be up to date; be aggressive; talk honey everywhere you go. I built up an enormous trade in the fall of 1894 with a well-ripened crop of honey from dry-weather vine and fall flowers. I controlled at that time a large portion of the drug trade in Evansville, and probably half of the grocery trade. I bought 5 bbls. of Root's No. 25 1-lb jars and one gross each of the 5-oz. and 8 oz. square flint Muth jars, and 5 gross of 1-lb. and 3 gross of 2-lb. Muth jars, all at one time. I had every kind of package to please the most fastidious. I sold both the 1-lb. square and round jars at \$2.00 per dozen, to retail at 20 cts. The 5 bbls. of Root's No. 25 jars were gone in a jiffy, while I have nearly all the 5 and 8 oz. jars yet. These I use at fairs to give away as samples. I often sold a dozen of the round jars to housewives who wanted a set for jelly, etc., but never sold more than one or two of the square jars at one time to any lady. They are considered worthless when empty, although my wife likes them for small pickles and catsup. I use the No. 50 label, costing \$1.75 per 1000 for both round and square 1-lb. jars. This label

is showy, and will not soil easily in fly-time. I find the 2-lb. square jar an easy seller to parties who mix their own cough medicine every winter.

I have now dwelt at length on the merits of various packages, as I think it a very important item to help sell our honey. I forgot to say my worst-selling package was the tin lard-bucket, Mr. R. C. Aikin notwithstanding. They may be all right to sell to old customers; but the main objection is that people can not see the contents unless it is opened. To get new customers to buy your honey, invest 5 cts. in a "glass show-case." As honey is not a staple, instruct the grocer to place conspicuously, and you will have the pleasure of selling both "show-case" and honey at the same time.

HOW TO LIQUEFY; HOW TO WASH THE BOTTLES.

We will now proceed to the process of bottling. Have your honey liquefied, if candied, holding the same at 150° for two or three hours. By using a gasoline-stove you can regulate to a degree, almost. Be sure not to over-heat it. It will stand 170 to 180 for a short time, but I prefer not to risk losing the aroma and injuring the delicate flavor. If you are compelled to buy honey, always buy in 60-lb. tin cans, as they are more convenient to handle. While you are liquefying your honey, wash your bottles, using clear soft water with sal-soda and shot to remove dirt and particles

of glass if new. Then rinse in clear water, and place bottom upward in racks to drain. This will make flint jars clear and sparkling. I did use a ten-gallon filling-can, bought of friend Muth, but now prefer to use my extractor (with cross-arm and basket removed), raised to a convenient height. I prefer to bottle honey hot, as it runs quicker, retains its aroma, and will stay liquid longer than if bottled cold. Have the rack containing empty jars at your left. Place the pan under the honey-gate to catch any drippings. You will soon learn how to cut off the flow just right the first time. Pass the jar to an assistant at the right, who presses the cork (cost 75 cts. per gross) in the mouth, then dips the jar into melted wax and paraffine, half of each. A second as-

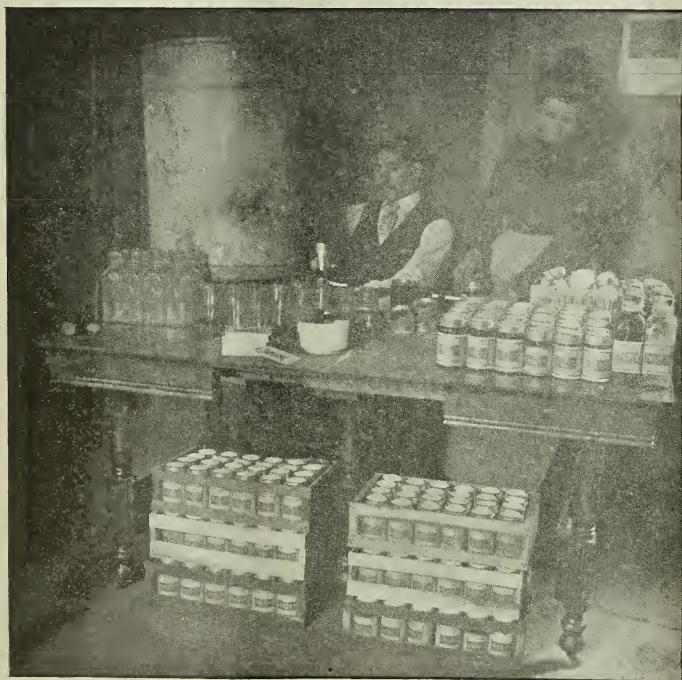


FIG. 2.—FILLING THE JARS, AND CAPPING.

sistant puts on the tinfoil (costs 75 cts. per gross) in place; winds a capping-strap around the jar with the right hand; then holds the jar with the left hand, running the head up and down on the strap until the cap is nicely smoothed down. A pasteboard, about 12×20, covered with dextrine (costs 10 cts. per lb.) is covered with labels in front of the operator. She lays the jar down flat, deftly catches the label by the corner, removes it from the board, attaches it to the center of the jar, smoothing it out with a soft cloth; then she places the jar in the case at the right, holding a dozen each.

After a little practice, three persons can easily fill, cork, wax, tinfoil, label, and pack 800 lbs. a day, and not spill a drop of honey, by this method. The corks used for honey-jars are seconds, and ought to be covered with wax to effect an air-tight sealing while the honey is hot.

HOW TO SELL THE BOTTLED GOODS.

Now, then, we are ready to sell. Tog up a bit; for if you will notice you will see that all successful salesmen are well dressed and well groomed. Take a sample jar of each kind, and go to your grocer. If he is busy, see if he has any honey in sight. Don't attempt to sell to him while he is busy. If he is not, tell him you have a fine article of honey, fine flavor, and good body; that the crop of honey is very short this year, and you will not have very much to sell. If you tell him you have five tons he will expect to get it for nothing. Hold your jar to the light; turn it upside down to show how thick it is; talk honey,

talk business, and stick right to him. Have one price for everybody. It will pay you to allow a good margin of profit, and he will then try to make more sales than if he made a very small per cent of profit. But be sure to have your honey placed where every one can see it on entering the store, as people hardly ever ask for honey unless they see it. I visited friend Pouder several times, and the steady stream of customers was evidence that he understands the art of bottling and selling honey to perfection.

Remember, in conclusion, that he who tooteth not his own horn, the same shall not be tooted.

LIQUEFYING-APPARATUS—SEE FIG. 1.

In presenting to the readers of GLEANINGS a photo of my liquefying-apparatus I have tried to make it conform as nearly as possible to the requirements of the average bee-keeper. Although I usually liquefy on a gasoline-range, the cut shows 500 lbs. of candied honey liquefying, without interfering with the preparation of meals. Two 60-lb. cans are placed in two common wash-boilers, then filled with water, and heated gradually. After all the honey in the can is liquefied it is drawn off into a Root's Novice extractor-can (with the baskets and crank removed), by means of a rubber hose, the can being covered to prevent foreign substances lodging therein. I had a Muth ten-gallon filling-can, but I like the extractor better as it has a much larger honey-gate, which is very essential in rapid filling. If the honey is cold, the flow can not be cut off a third as fast; therefore with hon-



FIG. 3.—LABELING AND TINFOILING WITH A CAPPING-STRAP (TINFOILING SHOWN AT LEFT).

ey at about 140 to 150° F., and a large honey-gate, we attain the maximum of rapidity in filling. Besides, I found, at least in my experience, that, in filling with cold honey, a large number of air-bubbles formed, thus preventing our getting the desired amount in the bottles. It would also run over the sides when heated to the right degree.

Of course, no one would attempt to seal until the bubbles had risen to the surface, which they will do in a few minutes with hot honey. If the honey is then sealed, and either dipped or corks sunk, and any kind of good sealing-wax poured on, thus effecting a hermetical sealing, the honey contracts when it gets cold, thus causing the much-talked-of vacuum, especially if a tinfoil cap is properly applied, making it absolutely air-tight.

I found, only the other day, 2-lb. Muth jars which had been waxed, that candied, while others on the same shelf, sold to the grocer the same day (Oct. 5, 1900), were nice and clear on account of the tinfoil cap. I find that if, after sealing, the jars are left in a warm room, thus preventing the too sudden cooling of the wax on the corks, we shall have no cracks. If one-half paraffine is added to the wax it will not crack nearly as easily, besides being much cheaper.

WASHING THE BOTTLES WITH SHOT.

In regard to the washing of bottles, I had a good laugh over Mr. Deadman's picture of the little boy punching the little pieces of glass out of the bottles, especially new ones. I used to do the same thing. But how much nicer, and far more easy, and quicker, to take about 3 or 4 oz. of No. 6 shot, and the bottle half full of warm soft water! A few shakes, turn the bottle, then pass to helper, who rinses in clean cold water, and we have a clear sparkling jar which is then set upside down in a large tray to drain.

I think Mr. Deadman's label is not in proportion to the size of his jar. It is too small and insignificant. If using jars like the No. 25 and the No. 100, where it is impossible to cover the top with wax, I now pour into each a large tablespoonful of beeswax and paraffine, right on top of the heated honey, which, when cooled, effects the air-tight sealing. This is an additional inducement to my patrons, as they thus secure a nice piece of wax to slick up their irons for laundry work; while, if put on the cork, it prevents the cork from breaking to pieces while being drawn out the first time.

If I am compelled to reliquefy any bottles of honey (which is very rare) I always set the jars in vats of water deep enough to come up to the necks, as I have seen honey scorch in the lower half of a jar while the upper half was yet candied.

I would say in conclusion to those readers of GLEANINGS who have no honey to bottle, better order a few cans of extracted, and a barrel of the No. 100 or No. 25 jars of The A. I. Root Co., and canvass your nearest town. You will be surprised how easy it is to sell a barrel put up in this neat, useful, and attractive package. It pays to work up a trade in a bad season, for, if you sell no honey in a bad

season, how can you expect to sell three or four tons when you have not previously worked up a foundation for the disposal of your coming crop? I believe this bottled-honey symposium will be the means of showing beekeepers how a large part of our crop can be disposed of, thereby increasing the demand for our product.

Evansville, Ind.

[I would say to our readers that J. C. Wallenmeyer was first known to the bee-keeping world as the author of the song "Queen Jeanette." I think it was dedicated to his "best girl," who subsequently went into partnership with him; and, if I may judge by the picture, she is his best helper in a business which he has been developing for years.

One can readily see by the way Mr. W. writes that he has had a large experience in bottling honey, and is familiar with all its various little details.

It is interesting to note that both he and Mr. Chalon Fowls prefer gasoline-stoves for liquefying honey, for the simple reason that the heat can be more easily controlled. The ordinary cook-stove, using coal or wood, is liable to overheat the honey, and that means either a loss in profits or loss in subsequent trade.

While Mr. Wallenmeyer has covered nearly every detail of the work, yet his familiarity with some features of it is such that he has left us groping a little in the dark. In Fig. 3, for instance, we see what appears to be a method of tin-foiling by means of a leather strap. One end of this strap is fastened to the wall, the other end being held in the left hand. From the description, I judge that the strap goes clear around the neck of the bottle, and that the bottle is slid back and forth, the friction of the strap around the neck causing the edge of the tinfoil to be smoothed out neat and workmanlike. There, I fear I am guessing; at all events, I hope Mr. W. will, in his next article, go into details in the matter of tin-foiling.

Referring to Fig. 1, I assume that the rubber tubing reaching from the wash-boilers to the extractor is a siphon by which the honey is delivered from the square cans to the filling-tank. If I am not right, Mr. W. will please correct.—E.D.]



SECURING HONEY FROM APPLE-BLOOM.

"Good morning, Bro. Doolittle. I came over from Massachusetts (by letter) to have a little chat with you about securing honey from apple-bloom; because, for the last few years, apple-bloom has furnished an abundance of nectar in this locality."

"So it does with us some years; but the rule is that the bees do not secure much from this source on account of high winds, or cold,

cloudy, rainy weather, which usually appears at just the time the bloom is at its best."

"Well, because this is so with you it is no sign that it is with all the rest of the United States and Canada. I know the readers of GLEANINGS would be interested in knowing how to get our bees in the best condition to secure honey from apple-blossoms, and I come to draw you out on this subject."

"The apple-bloom comes so early in the season that it requires more skill to secure many bees in time for a harvest from this source than from any of the later sources."

"This I believe, and that is just the reason I came over to see you and have a chat on this subject."

"In order to produce good results in honey, the first requisite is plenty of bees when the honey harvest arrives, for, whatever else we may have, success can not be obtained without plenty of bees. Again, as hinted at before, these bees must be on hand in time for the honey harvest, else they become merely consumers instead of producers. Many keeping bees are more often working on the consuming plan than otherwise, and, for this reason, tell us the truth when they say 'bee-keeping does not pay.' Our first step, then, is to produce plenty of bees in time for the harvest from apple-bloom."

"Exactly; and that is just what I wish to know, if you can tell me."

"Well, I will do the best I can. But, as I said at the outset, it will require much skill to secure plenty of bees in time for a harvest of honey from apple bloom. From practical experience I find that it takes about six weeks to build up an ordinary colony in the spring to where they are ready to produce honey to the best advantage. As apple-bloom comes from the 20th to the 25th of May we shall have to commence operations to stimulate brood rearing about the tenth of April."

"Isn't that pretty early?"

"Yes, it is early in the season, but not early if we are to be ready for the bloom; and because it is so early in the season is why so much skill will be required."

"I suppose you are right, here. But how about stimulating? How is this done?"

"I have tried many plans of stimulative feeding, both in the open air and in the hive, but finally gave them all up as not being of sufficient advantage to cover the cost of labor and feed."

"Yes, but there are many ways of stimulating, I am told."

"Well, there are ways besides feeding liquid sweets, but not many that have any advantage in them over allowing the bees to take their own course; and unless great care is used, the plan I am about to describe may prove of little value; or, worse still, an actual loss; and my advice to you would be to try it on only a few colonies till you are sure you can make a success of it."

"I will try to remember this if you will hurry up a little in telling what you know."

"When I have decided that it is time to commence active operations for an early harvest, I go to each colony and look it over,

clipping all queens' wings that were not clipped the previous season, and equalizing stores so that I know each colony has enough honey to carry it three weeks without fear of starvation. This last is important, for brood-rearing will not go on to any great extent early in the season where starvation stares the colony in the face."

"Do you find much brood in the hives as early as the 10th of April?"

"If we have had the usual amount of warm weather there will be brood in four combs with each good colony, and it is not best to try to work other than good colonies at this time of the year. The two center combs will contain the largest amount of brood, and I now reverse the position of these combs by placing the two outside combs of brood in the center, which brings the combs having the most brood in them on the outside. Thus, while the colony has no more brood than it had before, the queen finds plenty of empty cells in the center of the brood-nest, in combs having some brood in them, and she at once fills these combs with eggs, so that in a few days they will contain more brood than those which were moved to the outside, while the bees have fed and taken care of this as well as though its position had not been changed. Thus quite a gain has been made in regard to increasing the brood."

"This seems plain, and I do not see how any one could fail thus far. But what next?"

"In about eight days, if the weather will admit, these selected hives are gone over again, and this time a frame of honey is taken from the outside of the cluster, and the cappings of the cells broken by passing a knife flatwise over them, when the brood-nest is separated in the center, and this frame of honey thus prepared placed therein. The removing of this honey, to place it around the outside of the brood, causes great activity in the hive, the queen being fed to a greater extent, and the heat of the hive being kept up so that no brood suffers, even should a cold snap of a day or two occur. Where many err and make a failure here is in giving an empty comb in the center of the brood instead of a frame of mutilated honey. With the frame of comb the bees 'draw up' for a cold snap, and thus the extreme outside brood is left to perish."

"In going over this time, do you do any thing besides inserting this frame of mutilated honey?"

"Yes. As I go over these colonies each time I am careful to know that each has abundant honey to last at least two weeks; for if we wish to obtain the largest amount of brood possible, the bees must never feel the necessity of feeding the brood sparingly on account of scanty stores. It is also necessary to know that there are no cracks or open places at the top of the hive to let the warm air pass out, but tuck all up as nicely as you would fix your bed on a cold winter's night."

"Well, there is something in this getting ready for an early yield of honey—more than I thought. But what next?"

"After seven days more have elapsed I again go over these hives and insert another

frame of honey in the center of the brood-nest, prepared as before. Then in five or six days more the brood in the frames first 'thrown' to the outside will have largely hatched, and these, being on the outside, will be more slowly filled than those in the center, so that a very great gain can now be made by again reversing the brood-nest, which is now accordingly done. The brood is now hatching quite rapidly, and another frame of honey, prepared as at first, can be given two or three days later, for in these frames of prepared honey lies the greatest secret of successful brood-rearing, early in the season. In about a week more we go over these colonies again, this time putting in two frames of prepared honey unless the hard maple and willow are now yielding honey sufficient to cause great activity, in which case frames of empty comb will answer our purpose just as well."

"But by this time you must have brood in all the combs but the last put in."

"Yes; where only an eight or nine frame hive is used, this will conclude the stimulating process; for as soon as our frames are full of brood we have accomplished our object, only that we see to it that there are sufficient stores in sight so that the bees do not slacken in brood-rearing and allow the combs to become bare of brood before the apple blooms, which they will rarely do if they have sufficient stores, and no long-drawn-out cold or stormy time occurs."

"With the stimulating process over, what next?"

"As soon as sufficient bees have hatched so that they can protect the brood without its being so warmly tucked up, the surplus arrangement is to be put on, so that your dish will be right side up to catch the honey when the apple-blossoms secrete it."

"I am pleased to have had this chat with you, and will say good-by."

"Good-by; and may you be prospered by having good weather through apple-bloom this year; for if you are not, all labor in building the colonies up to meet it will be in vain."

Just as I had said good-by, along came a letter from one styling himself "Illinois," with these questions, which I will answer here at his request.

"Will the divided colony, or the colony in the box hive, swarm when transferred by the Heddon short method? What I have reference to is this: Will the remaining bees in the box hive cast a swarm before the 21 days are up?"

"No, not if the box hive is moved to a new stand, as it is intended it should be."

"Is it best to use medium brood or light brood foundation when using wired frames?"

"I have always used the light brood when using wired frames, as such costs less in proportion to the surface filled, and is just as good where wired frames are used."

"Should extracted honey be put in 60-pound cans direct from the extractor?"

"I should say no. It should be allowed to stand a week or more to clarify, in large tanks, when the clear thick honey should be

drawn from the bottom of the tank into the cans. If any hold different views, the readers of GLEANINGS would be pleased to hear from them."



ENCOURAGING RAINS IN CALIFORNIA.

All Southern California is rejoicing over the splendid rains for the past three months. Here at Riverside we have now had 10 inches; and as the rule is for us to get as much after Feb. 1st as we do before that date, it is not at all improbable that we shall have as fine bee-pasturage as we did in the summer of 1895, when I averaged 100 lbs. comb honey to the colony. The way our rains have come this winter insures a pretty fair crop, I think, even if we should not get any more. The 10 inches we have been blessed with has almost entirely come in a gentle fall that stayed where it fell, and the ground, even on the hill and mountain sides, is so thoroughly soaked that beemen are most hopeful. The good year referred to was preceded by $16\frac{1}{2}$ inches. In the past three years of failure there has been a total rainfall for all the time of only $17\frac{1}{2}$ inches, and now it seems quite probable that we shall get as much this winter as during those three years. At any rate the amount we have had up to this 7th day of February, and the way in which it has come, give us great encouragement for the season soon to commence.

G. K. HUBBARD.

Riverside, Cal., Feb. 7.

BEET VS. CANE SUGAR.

Now something else—GLEANINGS, page 44, regarding beet sugar. I am informed that a great deal of sulphuric acid is made from pyrites from Spain, and that arsenic is a component to quite an extent, and is not eliminated in the manufacture. This was the cause of the poisoning by beer which caused such a stir in Britain a short time ago. You can easily see how such a state of affairs could make trouble in beet sugar. I think your father's information is faulty, still I may not quite comprehend its drift. It by no means follows that, because two substances are alike chemically, they are alike in properties. Take, for instance, cane sugar and milk sugar, just alike chemically, but quite different in many characteristics; or try to use oil turpentine for oil lemon, both identical in chemical composition. Or call to mind the characteristics of the red, black, white, and flaky forms of phosphorus, and a late statement says that arsenic and phosphorus are identical. It is constantly asserted that jelly-making and fruit-preserving can not be successfully carried on with beet sugar. Personally I dislike beet sugar, and so far have readily distinguished it. The sugar made at the Rocky Ford plant is nearer to cane sugar than any other I have seen, in

taste. I have for twenty years held that glucose syrups are destructive to health. I can see nothing yet to make me think otherwise, and chemically some of these syrups are quite pure. The important question is their effect on the animal or human organism.

Denver, Colo., Jan. 23.

T. LYTLE.

[I believed at the time, that A. I. R.'s statement concerning beet and cane sugar was a little too strong. Still, in defense of what Mr. Rankin said, I would say this: That we have fed our bees on beet sugar for the last ten years, and our percentage of winter loss is as low as or lower than that of any one else I know of. It averages only between two and three per cent, and in extremely hard winters it may run up as high as ten or fifteen. Only one winter in the last fifteen years, that I remember, did our loss reach the high figure named. I have repeatedly tasted samples of cane and beet sugar from the best factories; and had I not known that one was from one source and the other from another, I should have never suspected any difference; and even when the samples were mixed *incognito* I could not tell which was which. Of course, there might be a trace of sulphuric acid or some other deleterious drugs. But the proof of the pudding is in the eating, or, rather, I should say, beet sugar for a winter food—and we have bought from factories everywhere during the last ten or fifteen years—has given us results that could scarcely be better. On the other hand, *before* beet sugar was on the market, and we used exclusively cane, we had some bad results in wintering. It would hardly be fair to attribute these results to the sugar, however, for at that time the art of wintering had not been brought down to as fine a point as now.—ED.]

QUESTIONS ON WINTERING, FROM A BEGINNER.

I am just getting a start with bees, and should like to ask you a few questions concerning their care, and especially wintering.

1. Will bees winter all right here in West Virginia on summer stands, with another hive made just large enough to slip down over the eight-frame Dovetailed hive, thus making a wall of two inches all around, where the hives are set on the ground as near as possible?

2. Would it be better to winter in the cellar, where the mercury gives only 10° below zero for two weeks or so? During a whole winter there will be a week of zero weather, and then a month of open weather. Which would you advise—wintering on summer stands with wintering-cases or in the cellar?

3. Will a colony of bees winter on 30 lbs. of syrup made from granulated sugar?

4. Will the moth-worm destroy a strong colony of bees in the movable frame hive if they are not destroyed in some way, or will the bees destroy them?

5. Will snow smother the bees if it falls 10 or 12 in. deep, and is not removed from the entrance, and lies for ten days or two weeks?

WILLIAM D. KEPHART.

Rohr, W. Va., Jan. 22.

[1. Yes, bees ought to winter in your climate very nicely when they are in winter-cases.

2. No. I would not recommend cellar wintering in your locality. When there is any considerable amount of open weather, the outdoor plan would prove the more satisfactory.

3. Yes.

4. In modern bee-keeping the moth-worm is no more feared than the wolf in the great centers of population. If the moth-worm makes way with the bees, you may be sure the owner either does not know very much about his business, or at least neglects it. But Italian bees, no matter what their strength is, will defend themselves against moths of any kind.

5. Not much danger of it. Unless the snow heaps up five or six feet deep, there will be very little danger of smothering.—ED.]

SPRAYING DURING BLOOM, DESTRUCTIVE TO BEES AS WELL AS TO THE FRUIT.

Mr. Editor:—You told us on page 103 about spraying fruit-trees while in bloom, and the effects. Can you tell us in your next what effect it had on the bees? C. M. HERBERT.

Salina, Utah, Feb. 7.

[The experiment related in GLEANINGS was not for the purpose of finding out whether the spraying of fruit-trees during blooming-time killed the bees, but to determine whether spraying at such times was injurious to the pollen and its development, and, in general, to the setting of the fruit. The experiment was conducted from the standpoint of the fruit-grower, because it is universally conceded, among all bee-keepers who are in position to know, that spraying during the time of bloom destroys bees by the thousands. Sometimes whole apiaries are so decimated that but few colonies are left from which to make an increase after the spraying season is over. Many instances of this kind are on record. Now, we know positively that spraying during fruit-bloom is detrimental to both bee-life and to the fruit-grower; and as soon as fruit-growers themselves discover that they are losing money, the practice will be discontinued. It is now in order to educate the fruit-growers by calling their attention to the facts.—ED.]

MEASURING BEES' TONGUES.

Friend Root:—In my "tin-can" article I omitted to say that I get from $\frac{3}{4}$ to $1\frac{1}{4}$ c per lb. above the barrel quotations for my honey. In carrying the cans I place my hands under either end of the case. This throws considerable of the weight directly upon the body, which makes it a lighter job.

I finished cellaring my bees Nov. 22—151.

While measuring bees' tongues, why not measure the tongue of the bumble-bee and make comparisons, then there will be no guesswork as to the necessary length. I will send you some of my bees in the spring or before.

ELIAS FOX.

Hillsboro, Wis., Dec. 10.

MARKETING HONEY IN MASON JARS.

R. C. Aikin's article, page 955, prompts me to write some of my experience and make a few remarks anent the retail business of extracted honey. I began tentatively some 18 years ago to retail extracted honey in divers kind of packages. I soon perceived and found that, for my locality, the Mason pint fruit-jar was the thing. As long as glass fruit-jars shall be used, I believe they will sell as honey-packages, for the obvious reason that, when empty, they are worth very nearly as much as new jars, and are used again in all families. I never used or thought well of honey-bottles, useless when emptied of honey. I have discouraged the use of tumblers, as they are too small. A pint, $1\frac{1}{2}$ lbs., is small enough. I have a gross of tumblers in a box; have had them four or five years; had a few calls from grocers for tumblers, but put them off one way or another.

I sell to about 100 grocery dealers, in nine or ten towns, about 250 dozen pints a year. Price now, \$2.25 a dozen, cash down. Until last spring I sold both for cash, or on commission at 15 cts. more, to be paid on next trip, or about 60 days. I warrant the honey every way, and secure the dealer against all losses on account of honey candying, getting shabby, dauby, etc.; take up and exchange, and would buy back if required. I have done and do that yet, on account of prejudice, and to inspire confidence in both myself and my honey. My success is gratifying. Many are getting educated in regard to both extracted and candied honey. Of course, I have a nice explanatory label on every jar.

While it is well to cater to public taste and demand in these matters, I believe we ought to and can also educate and form those tastes and demands in a measure, being careful not to indulge the public too much in matters of niceties and quantities. Why, they would buy honey a penny's worth at a time, or require half-pound or five-cent sections if you would start them that way. Your polishing sections, both before and after being filled, then enclosed in a nice pictured cardboard case, etc., is, in my opinion, an unnecessary and burdensome thing. I sell, also, many hundreds of pounds in common tin pails, 1, 2, and 4 qts., 3, 5, and 10 lbs., at 30 and 50 cts., and \$1.00 respectively. I use largely, as store-cans, second-hand lard-cans. They must not be filled too full, else they will not handle well in melting the honey. A. MOTTAZ.

Utica, Ill., Dec. 22.

[I think there is no question but the Mason jar—an article that is in demand in almost every household—is the most common package for extracted honey in the rural districts; and when one buys such a jar of honey he is not paying for a package that will be of no use to him in the future. The same is true, but to a lesser extent, of jelly-tumblers. These are cheap and very handy, and can be made to hold honey on the plan described by Chalon Fowls, on page 961, Dec. 15th issue. But in selecting a package for the local honey market we must bear in mind locality. Selser,

Pouder, Tweed, and a number of others who use Muth jars, or bottles of similar shape, cater to an extra-fancy city trade. Some of this is represented by the poorer class who want only a dime's worth of honey at a time; and other portions belong to the "upper ten" that want something fancy. With the last named the cost of the package cuts no figure. They seek something that is attractive in appearance, irrespective of price. The question of package, then, should be decided by local conditions.—ED.]



We have been having steady cold weather, with scarcely any warming up, for about three weeks. We see by the papers that a large amount of snow has fallen all over the Northern States. As I have before stated, heavy snowfalls generally indicate a good crop of white clover.

We are receiving more matter, I fear, than we shall ever find room for—matter that is "good stuff," and worth publishing. Although our two last issues were enlarged 16 pages, and although we shall continue to print extra pages for some time to come, it now looks as if we should never find room for all we have on hand and which we should like to publish. If any of our good friends get impatient, let them write and we will return the manuscript. It is not possible to print articles always in turn, as some things would be out of date unless given insertion at once; and even as it is I fear some up-to-date matter is held until it is out of date.

THE CALIFORNIA CROP FOR 1901.

Mr. M. H. MENDLESON says we eastern bee-keepers need not be alarmed by the glowing prospects of honey in California. While, undoubtedly, there will be a heavy honey-flow, there are not a quarter, he says, of the bees there were formerly, to gather the crop. He does not think, therefore, that California honey will be very much in evidence in the eastern markets, even this year, as the local consumption will probably take care of all there is produced.

THE MICHIGAN FOUL-BROOD BILL.

THIS measure, about which so much was said in our last issue, has, as I am informed by Hon. Geo. E. Hilton, passed the Senate, and is now in the hands of the State Affairs committee of the House. Mr. Hilton has seen the members of this committee, and also the Speaker of the House, and writes that he has the promise of their support. He says, moreover, he will stay and see the Ways and Means committee, to whom the bill will next be reported, and that, if he can get both committees to agree to offer a favorable report, we may expect it to pass.

In the meantime, our subscribers in Michigan will remember to write not only once, but write again if necessary, to their members of the House. See last GLEANINGS.

YORK'S PATENT DOUBLE-ACTING BEES.

WHILE we were on the cars *en route* to the Wisconsin convention, Mr. York poked fun at Mr. Hutchinson and myself on this matter of measuring bees' tongues. Mr. Rankin, you are aware, measures the whole tongue, while we measure from the mandibles to the end of the tongue. When Mr. Hutchinson and I were discussing which was the *right* way, Mr. York facetiously remarked that he had a plan that was better than either; and that was, to measure from the end of the bee's tongue to the end of the sting. There could be no confusion if we measured thus. And he proposed, further, that Hutchinson and I go into the business of breeding bees that could suck up nectar from "both ends" at one time, something like a patent double-acting double-plunger pump.

GOOD INDOOR WINTERING AT THE HOME OF THE HONEY-BEES.

WE are wintering 38 colonies in a compartment 8 feet square, in the center of the basement of our machine-shop, which is 36×96. The floor above is 7 inches thick, and is supported at intervals of 9 feet by means of 12-inch walls running lengthwise through the basement. Between two of the inner walls is the bee-room referred to, 8 feet square. At one end of the room is a board partition, and the other end is composed of several thicknesses of heavy matting and carpeting. There is no provision for ventilation, and the only air that can get into the compartment is through the matting referred to. Notwithstanding the rumble and noise above, of machine tools, the constant walking to and fro, the dropping of heavy pieces of steel, and notwithstanding the bees have been absolutely left alone, examination for the first time to-day, Feb. 21, showed that the bees were wintering well. They were perfectly quiet, and there were not enough dead bees on the floor to fill even a half pint cup. Examination of clusters under the frames shows the bees to be healthy and prosperous, not even one colony showing any signs of uneasiness. It will be observed that this compartment for the bees is in the center of a large basement in which are located pipes, iron rods, and two or three carloads of potatoes. It is necessary that the potatoes should be as cold as possible and not freeze, so it is the practice of our boys to open and close the windows in the general basement. There is plenty of fresh air in the outer room; and this air, being warmed up, finally percolates through the matting into the room referred to. The temperature of the bee-room is 48 degrees F.

It may be there is something in Ira Barber's statement that indoor-wintered bees should not receive direct infusions of air from outdoors. In our case, if they get it at all, it has to pass through a long passageway, where it

is warmed to about 40 or 45. It then reaches the bees. See Straw in this issue, referring to Ira Barber's method of wintering.

E. FRANCE'S BARREL TALK; HOW TO TEST A BARREL FOR LEAKAGE.

PRES. FRANCE, at the Wisconsin convention, told how to test a barrel, into which it is proposed to put honey, for leakage. In the first place, he explained that there should be good cooepage; that the staves should be made of sound kiln-dried stuff, and that nothing but *iron* hoops (not wooden ones) should be used. The barrels should then be placed, not in the cellar, but in a good dry room. Just before they are filled the hoops should be driven down as far as they will go. To test for leakage, proceed as follows: Drive one of the bungs in, and then, with the mouth placed tightly over the other bung-hole, breathe in air as long as you can stand it. The lungs should be re-filled through the nose, and then the air should be expelled through the mouth into the barrel until considerable pressure is made. Quickly slide the palm of the hand over the opening, and then listen for any hissing. If the barrel leaks at any point the air can be heard coming out. When you have found the spot, or think you have, dip the fingers in water and rub them along at the point of the supposed leak. If the air is working its way out, bubbles will form. The hoops should then be driven until the crack closes, and the operation repeated until no air escapes. If the barrel holds air for a considerable length of time, the pressure not going down perceptibly, it may then be known that the barrel is tight.

Mr. France explained that it is bad policy to pour water into a barrel to see if it leaks, as that causes the staves to swell and temporarily close a leak, and then when the staves dry out again, and the barrel is filled with honey, the leak appears when the barrel is full of honey. It should be borne in mind, he said, that the staves of a barrel will sometimes shrink, notwithstanding the barrel is full of honey.

He further explained that, while he is a user of barrels, yet for the *average bee-keeper* he would recommend *tin cans*, because there are only a few people who know how to make a good barrel, and few who know a good barrel from a poor one.

HOW TO PARAFFINE A BARREL.

In this connection it was Mr. E. D. Och-sner, a practical bee-keeper of Wisconsin, who explained that there was a great waste of honey if barrels are not paraffined on the inside; that one scarcely realizes the loss if he does not weigh the barrels before filling them with honey, and after they are emptied. The barrels, he said, should be made good and tight first, and then should be paraffined on the inside by pouring hot paraffine in the bung, closing it, rolling the barrel around, and then standing it on one end, and then on the other, so that every portion of the inside should be coated. The bung should be driven out, allowing the surplus paraffine to run into the pan whence it was poured.



TRAVELS IN THE SOUTH.

Although I have been over the Louisville & Nashville between Cincinnati and New Orleans toward a dozen times in years past, I enjoy the trip each time almost as much as I did at first. With modern improvements we can get on a fast train at Cincinnati at 6 P.M. and reach New Orleans the next evening. To do this the train stops only at large cities. Meals are served on board. This saves time, but I have often objected to the extra cost. Last evening I noticed on the bill of fare, "Armour's Chicken Tomales, 20 cents." In San Francisco or in Arizona, Mexican tomares (pronounced to-male-e) are a common thing. They are made of pounded corn, chicken meat, etc., with plenty of peppers (chili), and served hot; but it was a new thing on a Pullman car—a new thing that *Armour* should run opposition to the Indians in their manufacture. I didn't suppose a tomale would make any thing like a meal, and so I ordered other things with it; but, to my astonishment, for the 20 cents *four* tomares, smoking hot, done up in *corn-husks* in true Indian fashion, came on a plate. They made a pretty good square meal of meat and vegetables; and although *Armour* had put in rather more chipped beef than *chicken*, it certainly made a very nice, appetizing, and *low-priced* addition to the *menu*.

When I left Ohio, every thing was white with snow and frost; but as I opened my eyes this morning the full moon was shining on bare fields—not quite green fields, but the hills were covered with the green foliage of the evergreen-trees. The scenery along about Blount Springs and Birmingham, when illumined by the morning sun, is especially fascinating. The rocky hills are not only covered with beautiful pines and cedars, but by sparkling cascades and rapids leaping from rock to rock along the railway. I always enjoy watching a stream, because it tells when we are climbing up or going down. At one point we went up what seemed to me a pretty steep grade for more than a mile. It seemed like going over the Rocky Mountains. As we get further south the hills gradually change to level timber land and swamp, and, finally, to great expanses of canebrake and tall swamp grasses, higher than one's head, with bodies of water interspersed, until we begin to get views of the great ocean itself, or rather, perhaps, the great Gulf of Mexico. Of course, the cotton-fields, sugar-cane, and other southern crops are a novelty to the Northerner.

Through the swamps and wet woods the palmetto surprises and delights one who sees it for the first time; also the beautiful Spanish moss that usually comes into view at about the same time. The lumber industry continues to grow, much as it was a dozen years ago or more, but on even a larger scale in many

places. The supply of nice trees for timber and boards holds out better than in Michigan, seemingly; and then all along in the low wet woods, where water always stands nearly one foot deep, is found the beautiful cypress. For building greenhouses, and for making hot-bed sash, there is no wood in the world like cypress. The heat, dampness, cold-without-and-hot-within conditions that rot and twist every other timber seem to have little or no effect on this clear straight-grained wood. I have sometimes thought that it is because it grows *in* the water is the reason that wet and heat never harm it. Greenhouse rafters (or sash-bars) are often furnished of cypress, 20 or even 30 feet long, without a knot or flaw of any kind.

At New Orleans I left the L. & N. to take a trip up the Illinois Central toward Jackson, Miss., to visit Mr. Day, the author of the tomato-book. At Ruddock Station, a town built by the Ruddock Cypress Co., there is quite a little village with its streets all water, or, perhaps I should say, water and water-plants. A great sawmill is located in a cypress swamp, and the town is for the wives and children of the workmen. Of course, the houses are all on piles, as are the plank sidewalks too, for that matter. I at first wondered why they had streets at all; but it would hardly look businesslike if they didn't have spaces where one could imagine streets might sometimes be needed; but then, where is the earth (topped with gravel) to come from? Well, over near the mill they are starting streets by dumping sawdust into the water where the streets are to be. I began wondering why it is that the children didn't tumble off those plank walks, and go plump into the water. Perhaps they learn by "intuition" (the *girl* babies, any way) not to fall "overboard."

One often wonders at the queer names of railroad towns. The L. & N. has one called "Pine Barrens." I wondered at this somewhat, especially as it is in *Florida*, where they have so many spread-eagle names. It looks truthful and honest, any way—*painfully* honest—if they ever have a real-estate boom for that locality. On the Illinois Central there is a station called "Gulletts." I have thought many of the names of new places sounded as if the people were really hard up for a name at christening time. Hadn't some one better write a *book*, or at least an article, on "naming new towns"? Perhaps the U. S. Post-office Department might take the matter up jointly with the companies that are building new railroads.

Well, my good friend Day is still growing tomatoes, and using the cloth-covered beds, as he was nine years ago, and of late he uses the beds the fore part of the winter for growing the finest *cabbage plants* I ever saw. Cabbage is so hardy the cloth is all the protection he ever needs in his locality. Last season, from plants grown by this new method he not only grew the first cabbage, but the *finest* new cabbage, sent off to market; and, as a result, he got as high as \$8.00 a crate for some of it.

I wonder if I dare tell a little *story* about those nice cabbages. One of friend Day's

boys got to smoking cigarettes. His father told him if he would break right square off he would send him to the State Agricultural College. The boy went one year, and was not only cured of the bad habit, but he put his schooling in practice, grew the cabbages, and from the sale of them got money enough to go back to college again.

I was remarkably impressed with the very neat and tidy appearance of every thing about the "Day" home. Even the poultry-house was as clean and neat "as a parlor," or pretty nearly that, when you compare it with most chicken-roosts. Just before I came away my friend explained it. Some time ago I described how Terry had cleaned up all of the trash and every thing unsightly, and moved all the old rubbish, not only back in the lots, but put it over back of a hill where it could not be seen at all from the house. I think Mrs. Day had something to do with clearing up around the Day home. Well, it made me ashamed of our home. I had given a little "lecture" on the subject, and Mrs. Root had pointed out the unsightly things, but it was "put off" again and again. Mr. Day says there is *money* in such a "slicking-up." He says now if he wants a stick or board of a certain size or kind, instead of hunting all over the premises for it he just goes over where they are all put away, nicely sorted, and puts his hand right on the very best thing there is on the premises for that particular purpose.

The names of places in the western part of Florida are certainly unlike names of places anywhere else, and they have always been to me attractive and almost musical. I suppose they are Indian names, and I should be very glad to know the meaning of, say, Wewahitchka, Apalachicola, etc. Of course, these names are rather long; but the place where I now sit writing is called Iola. This is short enough, and very pretty—*ever* so much to be preferred to—well, we will say Vanburen, a name that is used in almost every State in the Union.

Before daylight Saturday morning, Feb. 9, the man who came down to the boat for the mail at Marchand's Landing escorted me into Mr. Marchand's home—yes, right into his bedroom, and astonished us all by saying to the sleeping man:

"Mr. Marchand, this is A. I. Root, the man you said you expected;" and, having done his duty, the postman marched off, leaving me to shake hands with a man before he had his clothes on, and almost before he was awake. Mr. Shepherd, the apiarist, was hustled out of bed after about the same fashion, and then we went out among the bees and *talked* bees.

The Marchand apiary has so many things to commend it I will describe it somewhat in detail. Between 200 and 300 hives are arranged in double rows so as to form a sort of hollow square. The operator stands between the two rows, and hive-entrances all point outward, so he is never obstructing the flight by getting before the entrance of any hive. The stands to hold the hives are a sort of bench, say 16 feet long. The hives rest on boards 6 inches by 16 feet, set up edgewise, and nailed to stakes. The hives are supported just high

enough from the ground to make it easy to work without stooping; and I want to say to you that, after looking over quite a number of hives, I don't believe I want any more down flat on the ground. The long stand (16 ft.) has some objections, such as jarring the next hives, getting around each hive, etc.; but the ease with which the whole apiary may be lined up level, and rows straight, I think compensates for all the other. I expect to give you some kodak views of it all, later. At present the hives have no shade over them, for every bit of sunshine is wanted from now on until very warm weather. When shade is wanted, loose boards are to be placed on rafters just high enough to clear the head. Mr. Marchand uses only fixed bottom-boards, and his plan of feeding is, I believe, about the cheapest and simplest that can be gotten up. A *third* strip of board runs the whole length of the hive-stand I have described, placed so if any hive is moved a little forward the back end will drop enough on the strip so as to be a little lower than the front or entrance end. Now pour in a pint or quart of syrup right on the projecting entrance, just after the bees have stopped flying at dark, and your feeding is done. No harm is done if the hives are left this way, providing the back end is lifted up and pulled back before a shower comes. When you want to lift any hive from the stand, do so by placing the back end against your body, and right here comes in the need of hand-holes on *sides* as well as ends of all hives. Marchand and Shepherd both say the wooden handles projecting from the hives are not wanted in their apiary, and I quite agree with them. We want no projections, to prevent stacking hives up tight and snug, if we can possibly avoid it. All hand-holes should slant a little up as the cut goes deeper, and the sharp corner of the board on the under side of the hand-hole should be cut down or beveled off. This apiary has hives all numbered; but the number is on the stand, under the back end of the hive, and not on the hive itself. Mr. Marchand has quite a lot of eight-frame Dovetailed hives with sides of half-inch boards instead of $\frac{3}{4}$. Why are not these just as good for this climate, thus saving both freight and lumber? Large amounts of pollen were carried in, and quite a little new honey, the day I was there. Mr. M. has another out-apiary, like the one I have described, and the two contain about 500 colonies. When I asked if 250 or even 200 in one spot were not too many, Mr. Marchand said he one year got over 125 lbs. per colony right through an apiary of over 200, and that he has never gone below an average yield of 50 lbs. per colony—usually 75 or more.

As there is no church or Sunday-school nearer than Wewahitchka, 15 miles distant, I took a boat again at night, and reached destination just as I saw some children starting for Sunday-school with their Bibles in their hands. I asked if I could not leave my valise inside their gate and go with them. I had before seen bee-hives in their yard, and when I learned that Mr. Thomas Spencer, their father, was superintendent, I consented to wait a little

and walk along with him. One minute I felt a little lonely and almost homesick because I was a stranger in a strange land; but the next minute I was — almost one of the family. A little later I was astonished to hear that I was expected to “preach” in the evening; and before I could correct the statement the friends were introducing me as *Rev. A. I. Root*. After my talk in the evening the pastor remarked that, even if it was as I said in my introduction, I was no preacher, and never had, and surely never *would* even *try* to preach a sermon, he felt, notwithstanding, they had listened to a very good sermon from a business man's standpoint, and told in a business man's language.

I shall always remember with pleasure the way in which the people of four different churches in Wewahitchka unite and work together in all Christian work. It rejoices my heart, also, to know they have a law, well enforced, that keeps saloons out of all the small towns in Florida, and perhaps this is the reason they have so many good men and women working together in harmony. Now, Florida should speedily get a similar law that will stop the cigarette business among *blacks* as well as *whites*, for it is getting a fearful hold, even among the small boys of both colors.

Alderman & Roberts have the largest number of colonies in one spot I ever saw or heard of. In 1891, 680 stands of bees, all in Mr. Roberts' dooryard, gathered an average per colony of 65 lbs. More than 22 tons of honey was brought in to that one spot, in one season, and all collected from flowers within the range of the bees' flight. Can the world furnish a parallel? At that time there were no other apiaries near; but now there are several within three or four miles that will likely make another yield like that improbable. There may be other points out in the swamp equally good, but the apiary would have to be situated on a platform of boards, above high water; and Mr. Alderman says that, during the dull season, when nobody is around, the bears would be almost sure to destroy an apiary so located.

During the great yield I have mentioned, a single colony, one of that 680, brought in 18 lbs. in one day. Only one was placed on the scales, and that one was probably no better than many others. The source was mostly from a tree called tupelo, and this tupelo honey *never* candies.

Much time and honey have been spent, and very likely much wasted, on arrangements for extracting honey, and doing it rapidly. Mr. Roberts has, perhaps, one of the best-arranged extracting-houses, for his has been gradually arranged as *real practical work* seemed to indicate it should be. With his apparatus, and ten people, mostly his children if I am correct, they have extracted ten barrels (perhaps two tons) in a day.

Sometimes when I meet with such earnest, honest, and kind Christian men and women, in whose every thought and word the love of God shines forth, I rejoice that God has permitted me to live, and know this kind of people. I found such friends at Wewahitchka.

Mr. Isabel, of Wewahitchka, has a very neat and pretty apiary. The hives are set on stands, much as I have described; the ground is raked clean and level, and it is really a pleasure to walk around through it. As we came up he said he had a queer case of robbing. It was still going on quietly, but the robbers were coming out and running up the front of the hive before taking wing, but heavily laden. The bees belonging to the hive either didn't know their stores were going off, or didn't have spunk enough to fight. Mr. Isabel sprinkled flour on the robbers (*a la* Utter), and hastily watched the entrances to all the 200 or more hives. In about a minute I called, “Here they are, boys;” and all hands came to see the dusty white bees scramble in with their huge loads. In a minute more we “swapped” places with the hives. The loaded robbers rushed in as they had been doing, as soon as we got the hives in place; but, lo and behold! they were taking their stores into the very hive they took them out of! One can imagine how they rushed out and in, rubbing their eyes to be sure they were awake, and may be scratching their little heads in perplexity to know what had happened. At any rate, in 15 minutes both colonies were quiet, and apparently normal. The colony that wouldn't protect themselves, of course received quite an accession of bees, and, very likely, bees that knew how to fight. I wish we might invent a similar plan to wake up mayors and policemen that can't see the ruin saloon-keepers are doing by violating the law, unhindered, right under their very noses.

The Apalachicola River has been for a week on a rampage. For a hundred miles or more the water is pouring over the banks at intervals on either side, and going off into the swamps and woods, but still the water keeps up. Like other large rivers on low flat ground, the sediment brought down for centuries past has raised the river bed and banks above the surrounding country, and now it is breaking out into new channels. It looks odd to see streams pouring out of a big river, all along, instead of emptying into it. Such freshets are common almost every spring, and whenever there is much rain. When we bee-keepers were all together one day Mr. Alderman told

A PRETTY GOOD FISH STORY.

He had a nice garden with a good tight close picket fence about it, to keep out the chickens. One night the river came up suddenly, and while the yellow water was pouring in at the garden gate, which had been left open, he noticed a school of good sized catfish pouring in at the garden gate with the water. After they all got in, and the water had settled down a little, the folks went out in a boat, swung the gate shut, and fastened it securely. The small fish slipped out between the pickets, but the big ones were captured in such numbers they had catfish enough for all the town for a long while. We all had a big laugh, I assure you; but Mr. A. declared it was true, and he is a *very* good man, and as honest and steady as the day is long.